

boro (*J. W. Russell*, 1844), specimen communicated by *L. W. Riddle*.

For Vermont. *Metzgeria pubescens* and *Riccardia palmata*; Jamaica (*F. Dobbin*). *Cephaloziella Hampeana*; Jerico (*A. W. E.*). *C. myriantha*; Killington Peak (*E. H. Lorenz*).¹ *Porella rivularis*; Jamaica (*F. Dobbin*). *Radula obconica*; Salisbury (*Miss Lorenz*).

For Massachusetts. *Calypogeia Neesiana*; Reading (*C. C. Kingman*). *Cephalozia serriflora*; West Harwich (*C. A. Weatherby*).² *Cephaloziella Hampeana*; Nahant (*W. G. Farlow*). *Lophozia porphyroleuca*; Mt. Greylock, Adams (*A. LeR. Andrews*).

For Rhode Island. *Calypogeia tenuis* and *Cephaloziella elachista*; Hopkinton (*A. W. E.*). *C. myriantha*; Wickford (*A. W. E.*). *Lepidozia sylvatica*; Westerly and Hopkinton (*A. W. E.*). *Lophozia excisa*; Hopkinton (*A. W. E.*). It should also be noted that the Rhode Island records from *Riccardia pinguis* and *Cephalozia lunulaefolia* may now be marked with the sign "+," the necessary specimens having been collected by the writer.

For Connecticut. *Calypogeia Neesiana*; Ledyard and Stonington (*A. W. E.*). *Lophozia alpestris* and *Sphenolobus Hellerianus*; Salisbury (*A. W. E.*).

The census of New England Hepaticae now stands as follows: Total number of species recorded, 169; number recorded from Maine, 116; from New Hampshire, 128; from Vermont, 103; from Massachusetts, 90; from Rhode Island, 71; from Connecticut, 128; common to all six states, 47.

YALE UNIVERSITY.

NOTES ON THE FLORA OF DUXBURY, MASSACHUSETTS.

CLARENCE H. KNOWLTON.

THE Committee which is working on the Flora of the Boston District has had very little information from the southern, and especially the southeastern towns. Except for the Blue Hills and the high land in Sharon and vicinity, this section of country is very flat, rising from sea-level in the east to a height of about 300 feet in Belling-

¹ See Grout, *Bryologist* 14: 53. 1911.

² Miss Greenwood reports this species from Worcester (*Bryologist* 13: 8. 1910), but her record was based on specimens which the writer would refer to *C. lunulaefolia*.

ham, Medway and Holliston, where it merges into the central Massachusetts plateau. It is a region of obstructed drainage and sluggish streams, with many ponds, and the waters find their way gradually into the North River, the Taunton and the Charles, which flow east, south and north respectively. The low hills and ridges are naturally covered with oak or pine. Some of the ridges are fertile and productive, but agriculture seems to find its best land in the meadows. The real interests of the people are in the manufacturing of the larger towns. The people merely occupy the country, without doing overmuch to develop it.

Thousands of acres are in the broad sand-plains so typical of the section. These and the low glacial knolls are covered with the inevitable *Andropogon scoparius* and *Betula populifolia*. The meadows seem to be low-lying sand-plains, containing much humus, but little or no clay, and the swamps and ponds are underlaid by water-washed sand and gravel of glacial origin. The swamps are occupied by *Acer rubrum* or *Chamaecyparis thyoides*, but many of them, and some of the wetter meadows and shallow ponds have been made over into cranberry bogs.

The eastern portion of this sand-plain country, comprising the northern half of Plymouth County, has been very little known botanically. It is especially interesting from its proximity to the sea, and because it runs into the big terminal moraine which begins in Kingston and Plymouth. I have made several trips of exploration to Hanson, Halifax and Pembroke, which lie just back from the coast, in this corner of our district, but outside of a few characteristic plants like *Solidago Elliottii*, *S. tenuifolia*, *Leucothoe racemosa*, *Ilex opaca*, *I. glabra*, *Woodwardia areolata* and *Aspidium simulatum*, the sand-plains and swamps might have been in the Merrimac valley, around Lowell, Tewksbury or Chelmsford, 45 miles further north. When I came to explore Duxbury I expected to find much the same flora, plus the halophytes and xerophytes of salt marsh and sea-beach. In general I found this to be true, for most of the species mentioned above seem to flourish there, but I found in addition enough other plants of interest to warrant this publication.

Along the seashore grew some 35 maritime species. Among these may be noted *Salicornia ambigua* growing freely with *S. europaea*, *S. mucronata*, *Atriplex arenaria*, *Suaeda linearis* and *S. maritima*. *Xanthium echinatum* flourished on the shore edge of the salt-marsh,

and *Hierochloa odorata* and *Phragmites communis* were abundant here as elsewhere along the South Shore.

It was of special interest to find some of these seashore plants extending inland. *Prunus maritima* fruited heavily this year in the gravelly soil it likes best. It extends inland to Halifax and Hanson, some ten miles, and is equally abundant in the Merrimac valley, 35 miles from the sea. *Lechea maritima* has an even broader landward range, as I have observed it. *Atriplex patula* grew lustily on the Duxbury dump, two miles back from the coast, with numerous garden escapes. *Salsola Kali* flourished in a barnyard, as vigorous as its var. *tenuifolia*, but still rigid and prickly. *Hudsonia tomentosa*, *Ammophila arenaria* and *Artemisia caudata* also occurred away from the shore.

As might be expected in one of the oldest Pilgrim settlements, I found many introduced plants, over 50 species. Most interesting of these was the English oak, *Quercus Robur* L. It has been set out for shade and ornament at Powder Point and elsewhere in the village, but at South Duxbury it has become thoroughly established and is rapidly spreading. In the triangle of wild land between the railroad and the old graveyard where Myles Standish lies buried I discovered a large number of these trees, of all sizes, with much fruit. So far as I know this tree has never become established elsewhere in America. It may be distinguished by its rosettes of round-lobed, crinkly-edged leaves, and its large pedicellate fruit, the acorn five times the height of the cup. Another very conspicuous introduced plant, from the West, *Oxybaphus nyctagineus*, was abundant and widely scattered over the settled part of the town. Other pilgrims from abroad were *Artemisia Stelleriana*, *Populus alba*, *Berteroa incana*, and *Dianthus plumarius*. There were but a few plants of the last growing in a railroad cut very near the John Alden house.

I observed exactly 50 species of *Gramineae*, a few of which deserve mention. *Sporobolus asper* was in perfect condition on Sept. 24, the dark spikelets fully developed, and well emerged from the upper sheath. *Paspalum setaceum* was easily distinguishable from *P. Muhlenbergii* by its hairy sheaths and bright blue-green foliage. I have also found these two at Halifax, Plymouth and West Barnstable. *Aristida purpurascens* and *Calamagrostis cinnoides* I found each at one place only. *Andropogon glomeratus* was abundant in a wet meadow. *Agrostis perennans* here, as elsewhere, was a characteristic plant of the dry oak woods.

My visits to Duxbury have been late for *Carex*, but on Sept. 10, in a cleared *Chamaecyparis* swamp, I found *Carex trisperma*, var. *Billingsii*, and splendid fresh green plants of *C. bullata*, var. *Greenii*, growing in sphagnum moss. I have noticed seven other common species in the township. Along the mucky shore of Cranberry Pond grew a form of *Scirpus cyperinus*, with cylindrical spikelets, 8 mm. long, which proved to be var. *Andrewsii*. The type is abundant.

The "South Shore," so-called, including the coast towns from Boston to Plymouth, is a veritable paradise for shrubs and woody vines. The numerous forms of *Vaccinium corymbosum*, *Cephalanthus occidentalis* in all shapes and sizes, *Rhododendron viscosum*, *Clethra alnifolia*, *Ilex verticillata*, *I. glabra* and *I. laevigata*, and *Nemopanthus fascicularis* are typical shrubs of the swampy woods, and were all flourishing in Duxbury. *Ilex opaca* I have not yet found, but as it is frequent in near-by towns, and ranges as far southeast as Sandwich on Cape Cod, it is to be expected almost anywhere in moist woods.¹ *Leucothoe racemosa* is also a well-distributed shrub in the region, and I found a little of it in Duxbury. *Psedera quinquefolia*, *Smilax rotundifolia* and *S. glauca* were frequent, the last species in the open, in dryer soil than its congener. The only alder was *Alnus rugosa*, the only grape *Vitis Labrusca*. *Rhus* was well represented by *R. typhina*, *R. glabra*, *R. copallina*, *R. Vernix* and *R. Toxicodendron* (the creeping form).

Solidago Elliottii grew very abundantly in swamps and moist soil generally, and it is a typical plant of the region. In many ways it is our handsomest species, its large dark green foliage forming a pleasing contrast to the clear yellow flowers. I found a little of *S. tenuifolia*, and a great deal of *S. odora*, already past blooming on Sept. 10. *Aster spectabilis* grew well in dry gravelly woods, but *A. laevis* seemed to be absolutely missing from the flora. *Hieracium Gronovii* was frequent in dry soil, *H. venosum* with green leaves was common, but I only found one plant of *H. canadense* and none of the other species.

Asclepias amplexicaule occurred here and there on the sand-plains in some abundance. One sterile shoot I collected because it bore three whorls of three leaves each. *Galium pilosum*, *Gentiana crinita*, *Polygonella articulata* and *Polygonum arifolium* deserve passing mention.

¹ As the Pilgrims found "holly" on their first exploring trip from Provincetown, in November, 1620, it is reasonable to suppose that this tree had a wider range on Cape Cod, originally.

Last, and in size surely least, was *Lemma perpusilla*, which covered the surface of a small and treacherous kettle-hole pond in a pasture. This species is credited to "Massachusetts (Clark)" without further data, in Thompson's monograph on Lemnaceae. There are no other records given from New England. The indefinite printed record is thus confirmed and made definite, and a new species added to the Local Flora list. Prof. M. L. Fernald collected specimens of this plant in Barrington, R. I., May 30, 1911, on the New England Botanical Club Field Day, thus adding a new species to the Rhode Island Flora.

In closing it may be well to call attention to the conspicuous lack of native *Leguminosae*. Aside from *Lathyrus maritimus*, the only species I noticed were *Baptisia tinctoria*, *Lespedeza Nuttallii*, *L. hirta* and *L. capitata*.

In general, the flora of Duxbury is that of seashore and sand-plain, with oak and pine woods, red maple and *Chamaecyparis* swamps. There are many wanderers northward from Plymouth and Cape Cod, but yet the flora is decidedly different from that of the morainal region and warmer shores only a few miles south.

HINGHAM, MASSACHUSETTS.

A SECOND STATION FOR *CYPERUS GRAYII* IN ESSEX COUNTY, MASSACHUSETTS.—When the Committee on the Local Flora reported in February, 1911, upon the occurrence of *Cyperus* in the Boston District, *C. Grayii* was known within the area only from Plum Island and "never reported at any other station north of Plymouth." It may therefore interest students of our local flora to know that the species occurs upon the sand dunes at Ipswich. While crossing the dunes with a party of students upon October 12th, I found a single small colony of not more than half a dozen plants. They had all fruited well and most of the achenes had fallen, so that the colony (presumably of recent derivation from Plum Island) is likely to increase. A specimen was taken for the Club Herbarium and another was collected by Mr. Harold St. John.—M. L. FERNALD, Gray Herbarium.

REGARDING *VIOLA PEDATA*, FORMA ROSEA.—Miss Sanders's report of this plant from Wayland, Mass. (RHODORA, xiii. 172) leads me to